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GENERAL INFORMATION



SEPTEMBER 1949

# Soil Conservation

OFFICIAL ORGAN OF THE SOIL CONSERVATION SERVICE

# SOIL CONSERVATION •

SEPTEMBER - 1949

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**CHARLES F. BRANNAN**  
SECRETARY OF AGRICULTURE

**HUGH H. BENNETT**  
CHIEF, SOIL CONSERVATION SERVICE

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## WELLINGTON BRINK

Editor

Art Work by

W. HOWARD MARTIN

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**EQUIPMENT SHARED.**—Three Vermont soil conservation districts—Essex, Winoski, and Caledonia—have developed an unusual working agreement covering rotational use of a dragline. The rotation is established in an over-all plan that requires each district to make a \$4 payment for repairs and depreciation into a separate fund for every hour that the equipment is operated. Any unexpended balance, when the dragline leaves one district for another, goes with the equipment. At the end of the life of the machine, or when the agreement is terminated, the balance remaining in the fund will be prorated back to the districts on the basis of the number of hours used by each. It is the first time two or more Vermont districts have cooperated with equipment.

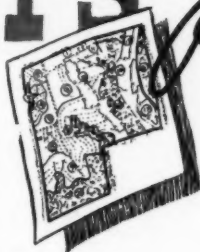
**SATISFIED CUSTOMERS.**—During 9½ years of work with farmers in Madison, Leake, Rankin, and Scott Soil Conservation Districts of Mississippi, not one has requested that his farm soil conservation plan be cancelled.



**FRONT COVER.**—This Pennsylvania scene illustrates partnership of town and country. Strips—slightly curved to fit contour, notwithstanding straight appearance—are on the farm of Stanley Lenker. Village in background is Hickory Corners. Hermann Postlethwaite took the photo.

# TENANTS

*point way*



HAVE yet to see a tenant operating a farm on which soil conservation practices have been applied who does not receive considerable benefit," said T. M. Dean, district conservationist, Farmville, Va. Dean recently was talking to Dr. T. C. Buie, who is in charge of the work of the Soil Conservation Service in the Southeastern States, about the way tenant-farmers are helping themselves and their landlords through the use of sound soil conservation measures.

"As a rule," Dean added, "the tenant makes little or no contribution toward applying conservation practices unless the landowner first takes the lead. . . . However, a surprisingly large number of tenants have pitched in and helped. . . ."

Here are some examples scattered throughout the 9-State southeastern region, showing how they have helped.

## JESSAMINE COUNTY SOIL CONSERVATION DISTRICT, KENTUCKY

"I have lived on and operated two different farms with soil conservation plans during the past 4 years," says Robert Middleton, tenant on Mrs. Lucille Peel's farm near Nicholasville. "On Mrs. Sally Steel Taylor's farm I observed how diversions built in a gullied pasture (formerly a field) enabled us to get a better stand of grass and increase grazing for our livestock and, of course, more profit for both landlord and tenant. On this farm there were a couple of other fields terraced and I was surprised that farming row crops on the contour with the terraces was not the extra bother that we thought it would be. But I was convinced that it saved soil and rainfall and made us a better yield.

"The reservoirs that the SCS technicians planned have better depth and do not fail. They have been a source of pleasure and of considerable fish for our family. I hope to have a farm of my own some day and one of the first things I'll do is to get help by a conservation survey and a general farm plan with our district."

From the same soil conservation district in Kentucky we hear the following from Mr. S. H. Wheeler, who has been a tenant on the 264-acre Barkley and Burrier farm for 24 years:

"Because I am now on the board of supervisors of this district, I think I have a better chance of observing that tenants are often benefited more than the landlord by these soil conservation plans. As an example, when good reservoirs are built the tenant is no longer burdened by driving stock, changing pasture, or hauling water in case of drought. He also, living right on the farm, enjoys swimming, hunting, and fishing more than the landlord who often does not live on the land.

"I understand the value of terracing and contour farming which is increasing rapidly and the tenants are not objecting as they used to, as they see it increases their yields and saves the soil. But here in the 'central bluegrass' we believe heavy sod is the best possible protection for our soil. So, I am glad that the plans in our district on an average have rotations that plan for fields to lay in sod over twice as long as they did before planning. Our better tenants are coming to realize that when they have an interest in livestock, it pays better to have more good pasture and raise less corn. I would not care to live on a farm without soil conservation."

## FLORIDA FARM OWNER SPEAKS OUT

"I feel that my farm has doubled in value since Moore came on the place about 8 years ago," writes Henry Elliott, owner of 240 acres of land near Laurel Hill, Fla. This tribute was paid to W. H. Moore, his tenant, who encouraged Mr. Elliott to draw up a conservation plan with the Yellow River Soil Conservation District in 1942.

While most of this land is too steep for continuous cultivation, cotton and peanuts have long been the main crops grown by tenant farmers. When the soil and water conservation program was planned, several fields were so severely gullied that it was "difficult to drive a wagon across them."

A 35-acre pecan orchard, set out about 50 years ago, had become a liability through misuse and neglect. The farm was so run-down it was neither good to see nor profitable to own.

That was the situation in 1942. Since then, Moore has been retreating from cotton and peanut farming. His ultimate aim now is to establish at least 100 acres of good pasture. Sixty acres have already gone in, planted principally to Pensacola Bahia grass, with crimson clover and fescue in the wet spots. Over 5 miles of terraces have been constructed, with well-stabilized outlets. Blue lupine has been used successfully as a cover in the pecan orchard, which grew 7,500 pounds of good nuts last year. This is not a big yield, but it's a big improvement over the production of a few years ago. Fifty-nine acres of woodland have been protected from grazing and fires have been kept out. A wildlife border of lespedeza bicolor is doing well along this wood lot.

The farm now supports 72 head of beef cattle and as plans mature toward larger pastures and better forage, the Elliott-Moore partnership expects their herd to increase in size. No wonder Elliott made the remark, "As long as Moore is on the place, it is not for sale."

#### ALABAMA REPORTS

When W. C. Hyde, 52, father of 7 children, moved to the 100-acre farm belonging to H. G. Davis, near Oxford, Ala., he found that corn and cotton had left the land gully-scarred and sheet-washed. The best production of cotton that could be obtained from 40 acres of cropland was about 18 bales. After conservation treatment, he has grown as high as 37 bales of cotton on the same area. Yields of other crops have shown a similar increase.

Before the conservation work was done, the landlord informed his tenant that he would not bear any of the expense in applying the conservation measures. Thus, Hyde proceeded on his own. He constructed 10,100 feet of terraces with his own farm equipment. In addition, he constructed a 1,500-foot drainage ditch to improve an area that was too wet for cultivated crops. And to improve his cropping system, he plants about half of his cultivated land to Kobe lespedeza and vetch each year.

Perhaps thousands of tenants have shown as much interest and enthusiasm in improving their

farming methods as this one, but the story doesn't end on the 100-acre unit of rented land. The landlord owns approximately 900 adjoining acres that are also tenant-farmed. Since his tenant led the way, the owner has constructed 80,000 feet of terraces and brought vetch and Kobe lespedeza into the cropping system on the rest of his 1,000-acre tract. Corn yields have risen from 20 to 63 bushels per acre and Davis concludes, "A man can always learn; my tenant taught me that soil conservation pays."

—GLENN K. RULE.

## TEAMWORK IN JERSEY WOOD LOTS

By GLENN E. SMITH

APPROXIMATELY 40 percent of the saw timber cut in New Jersey in 1948 had been marked for cutting by foresters. No other State has such a record or such a complete service for forest owners. There is no secret formula, no magic to account for this success. The reason is simple—cooperation: cooperation between public agencies, State and Federal, in working out a program for the common good.

The New Jersey program started in 1938 when the Bureau of Forest Management in the New Jersey Department of Conservation and Economic Development began organizing a practical system for woods management. Based on sound economics and the use of established forest industries, it has become a complete forestry service for the wood-lot owner who has saw timber to sell. Simply stated, the forester prescribes the silvicultural treatment for any particular woodland by marking the timber to be harvested. Then a private timber agent acts for the owner in carrying out the practices through commercial loggers and getting the largest financial return for the owner.

A few years after this system started, representatives of the Department of Conservation, the Soil Conservation Service, the Forest Service, and the Extension Service of the Department of Agriculture discussed a pooling of efforts in support of the program.

NOTE.—The author is forestry specialist, Soil Conservation Service, Woodbury, N. J.





Farmer and forester Henry J. Scherer, Port Murray, N. J., estimating salable timber in tree.

It was agreed that the Extension Service would contribute through information and education, and that the Conservation Department and the Soil Conservation Service would accept joint responsibility for the service aspects of the program. All forestry requests coming to the county agents and extension forester would be forwarded to the Department of Conservation. In turn, the Department agreed to send these requests to the soil conservation districts when they originated in areas where assistance of Soil Conservation Service foresters is available. Requests originating outside districts were to be handled by the Department and the Norris-Doxey farm forester operating from the State office at Trenton. The Department agreed to help the Soil Conservation Service

technicians at any farm wood lots where additional assistance is needed.

The Conservation Department agreed to take care of all paper work incident to timber sales and to serve as a clearinghouse for all information pertaining to it. Forest technicians in the Soil Conservation Service were to work only with district cooperators. Requests from noncooperators within a district, who did not intend to become cooperators, would be handled by the Department.

This understanding was put into effect promptly. It began to get results immediately and continues to function smoothly and effectively. Each agency is receiving benefits not otherwise available. For example, the two State foresters assigned to the program and the Extension forester promote interest in soil conservation districts whenever they

observe improper use of farm land. The Department forestry research plots and studies are made available to Soil Conservation Service and Extension Service for use at farmers' meetings and for information work. The cooperative management program also has been effective in advancing a common interest in such projects as the annual "show-me" trips to neighboring States for a study of forestry subjects. In the most recent of these expeditions, six different agencies were represented by the nine men who made the trip.

The program harmonized with the normal activities of the cooperating agencies. The Extension Service forester continues to mark trees for cutting in farmers' wood lots and to demonstrate pruning of forest plantations for the benefit of farmers. Practices he uses are those previously agreed upon by all the cooperating agencies. Information and education are principal working tools in Extension Service, but under this program, Soil Conservation Service, the Conservation Department, and Forest Service help in this direction in connection with the common forestry program. It's a smooth arrangement, productive of good results.

The effect of the cooperative spirit has reached far beyond the immediate team. Farmers' requests for forestry assistance are continually being received from Production and Marketing Administration, Veterans' Administration, Federal Land Bank, Farmers Home Administration, and other agencies. Such requests are handled in the same manner as those from the cooperating agencies.

The timber-sale program is not the only enterprise in which the State and Federal agencies cooperate. The Department of Conservation and the Soil Conservation Service have an agreement under which SCS is supplied with tree seedlings for planting worn-out and eroded lands of district cooperators. For wildlife plantings, most shrubs and plants are obtained from SCS nurseries. The Department's Fish and Game Division supplies the soil conservation districts with a large amount of lespedeza and assists in other ways.

As a result of discussions between representatives of the Department, Soil Conservation Service, Forest Service, Extension Service, and the Northeastern Forest Experiment Station, agreements have been reached on planting recommendations for various soil and site conditions. A planting guide, developed for use of all agencies, is the basis on which the sowing schedule at State forest

tree nurseries is planned. All of the agencies cooperate in securing proper treatment of plantations after establishment, and are working out uniform recommendations.

In other phases of forestry, the Conservation Department is cooperating with the Northeastern Forest Experiment Station in a program designed to rehabilitate the pine barrens in southern Jersey. This should be the most productive timber region in the State, but it isn't. Actually in 1948 the timber cut there amounted to one-fourteenth cord per acre. This cut-over, burned-over, grazed-over area of desolation is a monument to American land mismanagement.

The Northeastern Forest Experiment Station had the job of making a study and devising methods of rehabilitation. The Department set aside portions of State forest for these studies and experiments. As a result, a long-term program has been developed and application has been started on State forests in the pine region and on privately owned land. It involves prescribed burning as a forest-management tool in pine-oak stands. It is actively supported by the SCS and Extension Service. Because application calls for a knowledge of fire fighting, the Department's Forest Fire Service gives assistance.

The station also is studying problems in the management of Atlantic white cedar, hardwood swamp types, and hybrid yellow pine seedlings. In whatever programs it develops, cooperation of all of the other agencies is assured.

In a few more years, New Jersey will have an over-all forest land-use program that will be a model for the Nation.

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**HIGH VOLTAGE PUBLICITY.**—A soil conservation advertisement, "Take Off the Topsoil and You Raise the Devil," is being imprinted on all residential post card bills of a large electric power company with offices at Bluefield, W. Va.

This ad goes on a total of approximately 336,000 bills; 188,231 in West Virginia, 133,545 in Virginia, and 13,978 in Tennessee. Included in this group are 26,061 farms in West Virginia, 40,272 in Virginia, and 1,234 in Tennessee.

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**CONSERVATION CUTS COSTS.**—Grider Anderson of Somerset, in Kentucky's Pulaski County Soil Conservation District, knows how conservation can reduce production costs of corn. By careful contouring and land management he now produces 900 bushels of corn on 10 acres where 30 acres were required before.



Here are the champs: From left, front—Herbert C. Milton, 19, Brookneal, Va.; Henry S. Holloway, 15, Darlington, Md.; Wayne Spier, 20, Blue Springs, Nebr.; Boyd M. Cook, 18, New Castle County, Del. Top—Bobby Haynie, 17, Prescott, Ark.; John C. Phillips, 18, Wilkesville, Ohio; John DeMott, 19, Arkansas City, Kans.; David Shoemaker, 18, Colorado Springs, Colo.

By G. I. NOBLE

# Project

**W**HILE Nation-wide 4-H activity in soil conservation is somewhat recent, rapid strides have been made since the early 1930's. The significance of this growth of interest, one astute 4-H'er informs us, was propounded 2,000 years ago by Cato, the Roman philosopher. When Cato was asked what was the most profitable thing a farmer could have, he replied, "A first-class pasture." Asked what would be the next prized possession, he answered, "A second-class pasture."

This, and much more, is taught 4-H'ers taking part in the national 4-H soil conservation program. Contour strip cropping, terracing, building dams, making soil tests, and establishing permanent pastures are some of the many practices recommended. Members are alerted to the fact that the Nation's future depends upon the soil.

So it's not surprising that 4-H Club members take soil conservation work seriously. The project was developed by the Cooperative Extension Service, the Soil Conservation Service, the National Committee on Boys and Girls Club Work, and the Firestone Tire & Rubber Co. The sponsor first provided awards in 1944, and since then participation has more than doubled.

Although individual awards cannot be given to all 4-H boys and girls in the project, what is accomplished is recognized as a vital contribution to the country's welfare. Incentives include a gold-filled medal of honor for county winners, \$50 United States Savings Bond to 6 top-ranking

members in each State, an all-expense educational trip to the annual National 4-H Club Congress in Chicago for 16 of the best among the State winners. Eight \$300 scholarships go to national winners.

In view of growing 4-H interest in soil conservation, the cooperating organizations are now outlining an enlarged club program in soil and water conservation for 1950. Plans contemplate a 4-H leader's manual, leader training, and modifications in the award set-up to recognize younger members as well as teen-agers.

Field crops, livestock, dairying, poultry, and garden depend on soil conditions. That 4-H'ers realize this is apparent in what John DeMott, a national winner from Arkansas City, Kans., has to say. "No nation ever maintained its position in the world if it neglected its agriculture. So we, as farmers, must assume the responsibility of maintaining and improving the fertility of the soil while we maintain a high standard of living. We must leave the soil so that future generations will not be handicapped because of our neglect."

Realizing that a high grain yield and good livestock could not be raised from poor soil, John set about to sell his dad the idea of adopting soil conservation practices for their 640-acre farm. He succeeded. Following Soil Conservation Service recommendations, this foresighted young farmer did most of the plowing of a 10,300-foot

NOTE.—The author is managing director, National Committee on Boys and Girls Club Work, 59 East Van Buren St., Chicago, Ill.

terrace. His dad worked with him, and a grass waterway 5,000 by 75 feet was seeded and 520 red cedars planted for a windbreak. "The one thing that shows up best," declares John, "is our pasture, which I mowed 3 years and kept stock away from last year. It has made a wonderful showing."

Another national scholarship winner, Bobby Haynie of Prescott, Ark., reports, "In the last 4 years all open cultivated land on our 283-acre farm has been seeded to Austrian winter peas or hairy vetch. Turning under winter legumes, together with terracing and crop rotation, increased our average cotton yield from 150 pounds per acre to 300 pounds."

Bobby goes on to say that 2 years ago his dad bought an additional 48 acres in the Little Missouri River bottoms. The land was in the bend of the river and constantly under the threat of being cut across by the water. To prevent this he let the brush grow to protect the river bank. Gullies had begun to appear, so Bobby seeded them to lespedeza.

Since all 4-H'ers "learn by doing," young Haynie found out how to make and operate a level and was then able to assist his school in laying out 44 acres of terraces on the school farm. He supervised setting out 29 acres of trees on the rolling, washed land of the school farm, and predicts that erosion should be checked within the next 4 or 5 years. Bobby estimates the value of his soil conservation practices in the last 2 years alone as close to \$900.

The community 4-H Club of Harrison County, Mo., was proud of James Davis of Bethany, who has worked in soil conservation since 1945. James won a trip to the National 4-H Club Congress last year. "On our 140-acre farm we milk cows, raise sheep, and feed hogs," relates young Davis. Erosion has taken a heavy toll of 50 acres of upland, and has damaged the bottom land by silting in and flooding." Even while attending Missouri's College of Agriculture, James finds time to work out the water management and soil fertility phases of his balanced farm plan. He hopes to complete the livestock phase when he graduates.

James Morgan of Freedom, N. Y., also a soil conservation delegate at last year's Club Congress, tells a typical story. Located in Cattaraugus County, the Morgan farmstead was settled in 1840 by his great-grandfather who crossed the ocean from Wales. The rolling land was cleared and a

log cabin was built on the knoll where James has planted trees. Great-grandfather Morgan soon replaced the crude cabin with a frame dwelling. Here James' grandfather and father were born, and here the family still lives. For 100 years the rain and melting snows had run down these hill-sides carrying away the valuable soil of the large rectangular fields.

James often had been told how the farm, just as it was, had provided a living for several generations. James pointed out, however, that standards of living have changed. "Grandfather didn't have to pay for electric lights, telephone, running water, automobiles, farm machinery, and movies," he declared. "The city lured away many farm boys and girls. But now, thanks to the improved standard of rural life, young people are content to stay on the farm and make it even better. Soil will determine this standard."

Since becoming a 4-H Club member 6 years ago, James has had opportunities to go on dairy and field tours to see what others have done in soil conservation. He comments, "I saw, I listened, and I dared to do something that never before had been done on our farm!" He first set about to improve the pastures. He even worked up a demonstration entitled, "The Importance of Improved Pasture."

For over 50 years James' father had been working rectangular fields. The pasture lane running up the slope back of the barn was as permanent to him as the road in front of the house. Until that lane was changed, James and his brother couldn't go ahead with terraces or contour strips. Finally the day came when the old lane fences were taken down. New ones were built, three diversion terraces dug, and contour strips staked out. Now all crops are planted on the contour.

Summing up, this practical 4-H youth said, "It seems to me that we are on the threshold of a new era, and that soil conservation is one of the keys to unlock the door to that era. I have faith in these practices and know that the topsoil is the most valuable thing on our farm."

In all parts of the country, 4-H members are aware of the importance of soil conservation. From Blue Springs, Nebr., Wayne Spier was chosen a national winner for having 1 of the 8 best records in 44 States. One of the first things he did in his project was to plant a windbreak of 200 red cedar trees on the north side of his home. He plowed and seeded 5 waterways, built a dam,



and planted grass for a permanent pasture. Wayne also made a collection of grasses and weeds native to his community. He reports, "Before I enrolled in 4-H soil conservation I didn't know our farm had one-fourth acre of bindweed. Neither did our landlord. I sprayed this patch with 2,4-D and killed off more than 95 percent."

Wayne's club planted and cared for a grass nursery on the farm of one of the members. The plot aroused a great deal of interest and many people have visited it. The grasses have been used in an educational 4-H booth at the State and Gage County Fairs, winning blue ribbons at both. The club also puts on public demonstrations of waterways and terracing.

A new group of county, State, and national champions is now in the making as 4-H members carry out the 1949 National 4-H Soil Conservation Awards Program. The objectives are: (1) To know the value of soil in their lives and to the Nation, (2) to become interested in the farm family program of soil conservation for present and future production, (3) to learn through 4-H Club work how to conserve soil successfully, and (4) to prevent soil wastage and deterioration on the farms. Club leaders, county extension agents, and district soil conservationists help and guide the youth.

Each 4-H'er participating in the program must meet certain requirements to be eligible for an award. First, he must draw a map of the home farm as is, showing among other things the use of each field for this year and for the two previous years. He also must indicate the amount and kind of fertilizer or limestone applied during the two previous years, determine the average amount of topsoil in each field and the extent of erosion, and show where serious water or wind erosion has occurred.

Second, he must make a map of the farm as it should be to prevent loss of soil or soil fertility. Among the items to be decided are: Where to establish a permanent pasture; where to grow cultivated crops; where to grow trees and exclude livestock; which fields are in need of contour farming, strip cropping, or terracing; whether or not there is too much or too little livestock for effective operation; and whether or not there are any waterways which should be kept in grass.

The third, and perhaps the most important re-

quirement, is the record of practices carried out toward reaching the goal outlined on the map "as the farm should be." Upon the accomplishments, plus his general 4-H record, the contestant is judged for merit awards.

Forty-four States have again accepted the national 4-H soil conservation program. Alaska and Puerto Rico 4-H'ers also take part. Last year, 42,528 members were enrolled and 527 counties named winners.

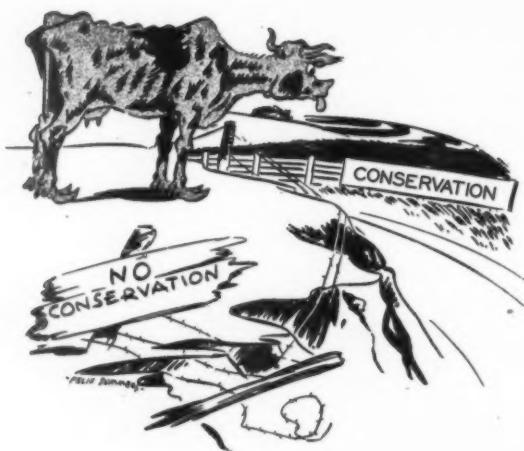


**ANOTHER MEDAL FOR CHIEF.**—The American Society of Agricultural Engineers awarded the John Deere Gold Medal for 1949 to Hugh Bennett. It goes to a man whose whole life has been of love for and service to the soil.

In the forefront of the medal is the pioneer, striding forth in the dawn of the day and of an epoch, convoying the covered wagon that carried his family, his fortune, and all the essentials of home and farm in a new, wild land—in America—including that irreducible minimum of agriculture, the plow. Walking westward with his rifle on his arm for immediate security, he has the sense of ultimate security, knowing that whatever may be the soil on which he settles, he will be its master because his plow is of the steel and his soul of the temper that will give security to the land and those who live by the land.

Behind him are symbols of the civilization which in a century have sprung from the tracks of his wagon and the furrows of his plow—smokestacks of factories whence come all the creative comforts of a thrifty and successful people. The airplane over this pioneer, now a hundred years after the covered wagon, travels its trail at a hundred times the wagon's pace.

**INCENTIVE.**—Slope-Hettinger (N. Dak.) Soil Conservation District steps out in State-wide conservation achievement program. Supervisors are giving a year's subscription to SOIL CONSERVATION Magazine to each cooperator from the district who enters this event.



THE GRASS IS GREENER ON THE OTHER SIDE OF THE FENCE!



IT WILL RAIN DOLLARS FROM HEAVEN  
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# Artist on the Land

By RAY W. JONES

**F**ELIX D. SUMMERS is a husky young man, tanned by the summer sun, who spends his days laying out terraces for farmers of western Iowa. He is a son of old Eli, a pupil of a noted eastern muralist, and a successful artist on Broadway.

Summers works for SCS in the Mills County Soil Conservation District, Malvern, Iowa. He maps field boundaries, lays out about 75 miles of terraces each year, and does general lay-outs of conservation practices in his job as conservation aid. In spare time, during lunch periods, in the evenings, and on Saturdays, he draws cartoons, posters, and other items useful in soil conservation educational work.

Felix is a descendant of Iowa pioneers. His grandfather, James Newton Summers, came to what is now Mills County in 1854, and settled on a 1,000-acre grant. From that time on the Summers family were prominent in livestock raising and grain farming.

The artist was born and raised on a Mills County farm, and through the years he has made a large collection of drawings depicting rural life. To-

day he admits that his urge to draw goes back to the age of seven.

His parents live in Strahan, Iowa, and it was from the Strahan High School that Felix received his first diploma. After working a few years on an Iowa farm and some time spent as a ranch hand in Wyoming, he decided to continue his education.



NOTE.—The author is work unit conservationist, Soil Conservation Service, Malvern, Iowa.

He spent 2 years at the Peru (Nebr.) State Teachers College, then 3 more at the University of Nebraska getting a fine arts degree. He continued his study and received a fine arts degree from Yale in 1935. Then came a year with Eugene Savage, New York mural painter, followed by 6 years in New York as a mural painter and wall decorator.

His murals have adorned the walls of the El Morocco Club and the Cotton Club. One of his murals may still be seen in the Franklin Simon Department Store on Fifth Avenue.

After serving in the Army with the combat engineers, Summers returned to his home in Mills County to rest, planning to go back to New York to the painting of murals. His interest in agriculture, however, led him to accept a short-term appointment with the Soil Conservation Service for work in the Mills County District. He did a few drawings for the district more or less to keep his hand and eyes in practice.

However, he has remained in the district for 4 years now and in addition to being a high producer in laying out conservation practices, has in odd moments turned out an average of more than one drawing a week. Carrying a small sketch pad in his pocket, he constantly makes notes from everyday life—a dejected-appearing person, perhaps, or a very happy person; a badly eroded field or an unusually well-kept one; a weedy pasture or one well seeded; a set of dilapidated farm buildings or a well-kept group. At other times his attention may be caught by a scrawny horse, a cow, or a mongrel pup. Felix frequently observes, "Poor land makes poor people."

Although Felix Summers has duties only as a conservation aid, he gives his exceptional talents freely to promote an understanding of the land and its problems.

In addition to turning out exceptional posters, progress charts, illustrated reports, maps of planned practices, and other more or less routine drawings, Felix has combined his art with his knowledge of agriculture to produce a large number of cartoons which tell a needed story in few words for the benefit of farmers and city dwellers. They are widely used in the Midwest. Among the more popular have been "Yet We Worry About the Atomic Bomb," "Let Her Blow," "It Will Rain Dollars from Heaven," "'Tis Later Than You Think," and "It Will Take More Than Cussin' to Stop Him."

## OUT OF THE ASHES COMES THE GRASS

By THOMAS I. WILSON

**F**ROM ashes to grass in less than a decade is the story of 200 acres of burned-over forest land in eastern Umatilla County, Oreg.

In August 1939 a forest fire leveled some 1,200 acres of yellow ponderosa pine on the Pat Doherty sheep ranch on Butter Creek near Vinson. All that was left was a thick layer of fluffy ashes. With all protective cover gone, erosion found an easy mark. Soil in the area is particularly vulnerable once it loses its cover.

In this part of Oregon the only vegetation appearing the first 2 or 3 years is the annual grasses. These do not afford erosion protection and they do help to continue the fire hazard. With this in mind, J. H. Parkins of SCS suggested to Doherty that 200 acres of the burned-over land be reseeded to several grass mixtures to determine if certain plants could be artificially established on burns; if once established, how long they would remain as an important vegetal cover, and how effective they would be as compared with natural recovery or no recovery in stabilizing soil movement and reducing destructive runoff. Doherty was enthusiastic about the idea and the test was undertaken in 1939 in cooperation with the Oregon Agricultural Experiment Station.

Soils in the area are generally from 18 inches to 3 feet deep. They are mainly of the Underwood, Cause, Waha, and Helmer series, and there is some Craig which may be 5 to 8 feet deep in places. The slopes are generally moderate to steep. Some native grass was left on open hilltops and south slopes where sparse stands of trees and brush did not burn.

The seeding was started December 1939. Previous experiences in similar areas showed this type of seeding should be made late enough in the fall to avoid fall germination because of the danger of spring soil heaving while plants are small. Hand seeders broadcast the seed in the ashes on the fifteenth of the month, with five men walking abreast seeding approximately 100 feet at a strip. End points were marked for guidance on the re-

NOTE.—The author is work unit conservationist, Heppner, Oreg.





This reed canary grass was seeded 9 years ago on burned-over timberland in Heppner Soil Conservation District. It grows well over 6 feet tall on moist sites. That's Tom Wilson of SCS checking results.

turn trip. Comparable unseeded areas were designated throughout the burn for comparison. As the seed had been in storage for several years

and the average germination reduced to approximately 35 percent, sufficient seed was used to give a rate equivalent to 8 pounds of good seed per acre.

It was agreed that no grazing would be allowed the first season unless the stand was well enough established to permit a band of sheep to pass through the area in the fall.

To determine the effectiveness of various grass mixtures, the seeding was carried out in plots as follows:

	Pounds per acre
Plot 1:	
Alfalfa.....	5
Crested wheat.....	10
Tall oat.....	7
Plot 2:	
Sweetclover.....	5
Timothy.....	3
English rye.....	4
Slender wheat.....	10
Orchard.....	.25
Plot 3:	
Hairy vetch.....	7
Smooth brome.....	10
English rye.....	5
Plot 4:	
Crested wheat.....	12
Miscellaneous, including mountain brome, blue bunch wheatgrass, bulbous blue- grass, little bluegrass, and Idaho fescue, each in small quantities.....	10
Plot 5 and 6:	
Crested wheat.....	11
Mountain brome and miscellaneous, includ- ing small quantities each of smooth brome, slender wheat, tall oat and Eng- lish rye.....	5

When an inspection was made July 20, 1940, an excellent stand was evident on each plot, and most species were setting seed. At that time there was very little vegetation in the grass stands other than the species seeded, except for an occasional plant of pinegrass. Since there was no cover on any part of the area during the runoff season of 1939-40, erosion measurements were not made, but soil and water losses were observed throughout the entire burned area.

On the unseeded area varying amounts of pinegrass, fireweed, spirea, bull thistle, and downy brome grass were growing, which in no case afforded so complete a cover as the seeded grasses and legumes. No forest seedlings were found in the area. The seeded grasses stayed green throughout the fire season and were, therefore, more resistant to another fire than the natural vegetation in the unseeded area.

First inspection showed the following species best adaptable for this type of seeding in the order listed: Tall oat, English rye, crested wheat,

smooth brome, orchard grass, alfalfa, timothy, sweetclover, hairy vetch, and mountain brome. Eight pounds of high quality seed per acre was deemed adequate to obtain excellent stands.

An inspection made in November 1941 (the second year) showed that a good stand was obtained by late fall seeding, that the seeded area was protected from measurable erosion the second year after the burn, and that the grasses had a deterring effect upon the establishment of tree species in comparison with the burned, unseeded areas.

After 2 years the unseeded burned areas did not have an erosion-controlling cover, up to 25 percent of the topsoil had been lost in the burn, and the carrying capacity was still zero. Vegetation consisted of some spirea, snowberry, snowbrush, pinegrass, bull thistle, china lettuce, and downy brome grass.

The species predominating in the seeded area and listed in order follow: Tall oatgrass, smooth brome grass, crested wheatgrass, mountain brome grass, bulbous bluegrass, timothy and orchard grass, sweetclover, alfalfa, slender wheat, English rye, and hairy vetch. A very small quantity of reed canary grass, seeded in a rather damp site, made excellent growth.

The tall oatgrass and smooth brome grass appeared to be scattered over most of the entire area, and in favorable spots attained a height of over 6 feet. On the other hand, the English rye and slender wheat, which had made an excellent growth the first year, grew to a height of only 6 to 12 inches. The bulbous bluegrass, not found the first year, was much in evidence on plot 4 and grew to a height of 12 to 14 inches.

Grazing was deferred until July. After a band of 900 sheep was kept on the area for 1 month, it was estimated that about one-fourth the available forage had been used. They were then removed because dry, downy brome grass in the unseeded parts was causing sore eyes in the lambs.

This grazing was equal to 4.5 sheep-months per acre of grazing, with an estimated carrying capacity of 12 sheep-months per acre. That would approximate 20 cents per acre at the Forest Service rental rate for summer range, or approximately 40 cents if rented to private owners at that time. Using this as one-fourth of the total forage available, it would give an annual value of 80 cents at the Forest Service rate, or \$1.60 at the private rate for that time. Therefore, the

annual available forage would pay the cost of seeding (\$2.50 per acre) within 3 years.

After 9 years a follow-up inspection was made in August 1948. The seeded area was still green, and tall oatgrass and smooth brome grass were very much in evidence over all the plots. Tall oatgrass was most evident, growing to a height of 4 to 5 feet on all plots. It appeared to have taken over as stands of other grasses thinned out. Smooth brome grass appeared to have been grazed heaviest in preference to the tall oatgrass. The best stands of crested wheatgrass were found on shallow, rocky soils. Little bluegrass and some bulbous bluegrass were the only understory grasses found; occasional Idaho fescue plants and clumps of mountain brome grass were noticed throughout the area. An occasional plant of alfalfa was found in plot 1, but these plants were low in vigor and had been grazed to ground level. No sweetclover or hairy vetch was found and

they had completely disappeared in the plots in which they were sown.

Since sheep have grazed this area for summer range since its seeding, it was assumed that heavy utilization of the highly palatable legumes was a major factor in their disappearance. It would not have been practical to limit grazing to perpetuate these highly palatable legumes since they furnished a very small percentage of total cover in the area. Snowbrush and pinegrass, appearing in small portions, were the only noticeable native plants growing. There was a scattered reproduction of yellow pine, lodgepole pine, and Douglas fir. There was no measurable erosion.

Thus, after a period of 9 years, results of artificial seeding on this 200 acres of burned-over land have shown that destructive erosion, so frequently the aftermath of fire, can be stopped in its tracks. They also demonstrate a thoroughly practical method for converting a liability into an asset.

## TALE of TWO FARMS

By J. M. PARKS

**W**HEN Elmer Hutcheson bought his 116-acre hill farm near Lockhart in south central Texas in 1919, he paid \$65 per acre. An adjacent farm had just sold for the same price and he was sorry he hadn't been able to buy it, for it was considered somewhat better.

Last fall the other farm sold for \$40 per acre. But Hutcheson at about the same time refused \$100. The difference was soil conservation. Hutcheson's had it, the other did not. The other had a few old terraces. It had lost topsoil and declined in productivity. Hutcheson's place had a conservation program which included all the various measures needed to control erosion and put every acre to its best work.

In 1923 Hutcheson saw erosion doing serious damage to his sloping fields. "I was told that terraces would protect my land and make me rich, and I believed it," he recalls.

So he put in terraces. They were not, however, properly designed. At one end they emptied water into an adjacent field. The water cut into the ground and carved out a tunnel. One day the



Elmer Hutcheson views old gully formed when water from improperly designed terraces cut into ground and gouged out tunnel that finally collapsed.

top of the tunnel fell in. Result: A big gully.

On the other side the terraces emptied into the roadside. With the first hard rain, the county road was washed out. "The county commissioners threatened to sue me," Hutcheson chuckles.

When the Hays-Caldwell-Travis Soil Conservation District was organized in 1940, Hutcheson became one of its first cooperators.

The troublesome terraces were redesigned to empty into a natural draw protected by a thick stand of grass. A 6-acre field at the base of two slopes was taken out of cultivation and made into pasture. The natural draw now spreads excess water safely over that pasture. "I wasn't any too

NOTE.—The author is district conservationist, Soil Conservation Service, Seguin, Tex.

happy about changing that 6-acre field," Hutcheson remembers. "Now it's my best pasture."

With the terraces and other mechanical measures working properly, Hutcheson has turned his attention to the more important vegetative part of his program. "I've been long on terraces and short on soil improvement," is the way he puts it. "It's only in the last 2 years that I have been giving proper attention to soil-improving crops. I believe I'll be able to double the yields I was getting when I began my conservation program."

In 1948 Hutcheson harvested one-third more cotton on land that had been improved with Hubam clover than on adjacent land where no soil-improving crop had been planted.

Other major practices are crop rotations and the adjustment of stocking rates to fit the forage available. Eighty-two acres are in cultivation, the rest in pastures. In cultivated fields Hutcheson raises cotton, maize, corn, Sudan grass, and clovers. He usually keeps about 80 sheep, 300 to 400 chickens, and 4 or 5 milk cows.

Five years ago he was elected to the Hays-Caldwell-Travis Soil Conservation District board of supervisors. He is now vice chairman.

## REVIEWS

**GARDEN SOILS: THEIR USE AND CONSERVATION.**  
By Arthur B. Beaumont. Orange Judd Publishing Company, Inc., New York. 1948. \$3.50

This attractive volume fills a long-felt need for a book on garden soils and their treatment, including conservation. It bridges the gap between the many excellent books on soil science and those on the culture of vegetables.

In the beginning, the author gives a popular description of soils, their characteristics and adaptations. This includes briefly the formation of soil, what constitutes soil, the different kinds and groups of soil, where they are found, and the uses to which they lend themselves. Such terms as mineral soils, organic soils, loam, soil series, and soil types are described so that the lay person can understand them. Garden soils and sites are discussed in detail. Criteria for garden soils and their adaptation are taken up under texture, structure, profile, drainage, chemical composition, organic matter, stoniness, and topography.

Succeeding chapters treat soil fertility and the improvement of garden soils through the use of fertilizers, organic matter, and proper tillage. Conservation of

garden soils and the use of conservation practices run throughout the discussion. Compost, mulching, winter cover crops, and other conservation practices receive special treatment. One entire chapter is devoted to compost for home gardens. It treats the making, use, and application of compost, also the addition of inorganic fertility amendments and reagents to hasten decomposition, as well as the micro-organisms which bring about decomposition. While the use of compost and other organic fertilizers is recommended, their use to the exclusion of chemical fertilizers is held to be a mistake.

The purchase and planting of earthworms is frowned upon. It is contended that if the soil has sufficient organic matter, the earthworm population will take care of itself.

Up-to-date information on weed killers, hormones, and other plant-growth regulators is supplied. The last paragraph of each chapter summarizes the things to be remembered. Such special features increase the value of the book to both amateur and experienced gardener.

The book concludes with a chapter on soil, vegetables, and health. It treats of the prevalence and increase of degenerative diseases due to lack of important minerals and vitamins in the food we eat. Vegetables and other plants contain only the minerals which are found in the soil on which they are grown. Vegetables of similar appearance may vary widely in chemical composition and nutritive value. The way to supplement a poor soil with needed minerals and balance fertility is to add the minerals through commercial fertilizers. The author rejects the idea that chemical fertilizers are harmful to animal and human health.

—W. W. REITZ.

**FLORIDA WILD FLOWERS.** By Mary Francis Baker. Macmillan Co. New York. 1938. Price \$3.50.

A quick method of identifying common plants is desired by many field men. Most analytical keys used in descriptive floras are very complex and difficult for the average person to use. Some are difficult for the better botanists. Standard nomenclature is not adhered to and unless a glossary is contained in the text it is almost impossible to interpret meanings of the author.

For the past few years, the use of a book prepared for the layman has been found helpful in identifying many plants in connection with soil conservation work. The book is "Florida Wild Flowers."

In using this book as the basic tool, most plants of Florida have been easily identified. The keys used in "Florida Wild Flowers" are based upon (1) color of the flower, (2) character of the plant—such as tree, shrub, vine, or herb, and (3) special characteristics of the flower.

Although Mrs. Baker did not include more than a few species within the genera, she did include the more common plants. Whenever the specific plant is not described, the genus is found and by reference to a larger and complete flora the specific plant can be readily identified. In the immediate case the "Manual of Southeastern Flora," by John Kunkel Small, published by him in New York, is used as the final authority.



Undoubtedly, the use of "Florida Wild Flowers" can be extended to other sections, as many of the plants are native over a wide range within the Southeastern States and beyond. Many plants common to parts of Florida are also found as far west as Texas, and northward beyond central United States.

The use and simplicity of this book is illustrated by going through the keys to identify two types of flowering plants. We have an erect-growing, yellow, aster-like flower with alternate leaves. The stem and the few leaves are hairy, with the upper part of the stem "sticky-like." The inflorescence is a loose panicle of flowers and long peduncles.

On page 9, we find:

Key—For the Identification of Plants.	
Flowers—yellow, yellowish, or orange—	13

Then on page 13 we find:

A. Herbaceous plants. Not vines	
b. Leaves alternate, toothed or lobed	
F. Leaves tubular or strap-shaped in heads	
Compositae.....	219

On page 219 we find:

Composite Family	
Compositae. Flowers small, crowded in heads that may appear like solitary flowers—such as aster, dandelions, and thistles.	

There follow almost four pages of descriptive material explaining this large family of plants, giving interesting items about particular ones of the group and finally an explanation of arrangement of flowers in the heads, making clear certain technicalities which will facilitate further identification. This leads to the final key to be followed.

Keys to the Composite Family	
Group III. Heads ligulate. All flowers strap-shaped.....	232

On page 232 we find:

Group III. All flowers strap-shaped. Sap milky. Heads yellow, small	
Hieracium.....	233

On page 233 we find:

Hieracium Gronovii. Hawkweed. Heads yellow,  $\frac{1}{2}$  inch across in terminal panicle. Pappus hairlike. Stem 1 to 3 feet tall. Leaves hairy, oblong or broadened upward, 2 to 6 inches long. Woods and pinelands. Florida to Texas and Massachusetts.

As there are a number of Hieracium species, it may be necessary to refer to Small's "Flora" to be sure of this plant. Here will be found a short synopsis of the genus, a key to the species, and a detailed description of 9 of the 300 species which are natives of the North Temperate Zone and South America.

Let us consider another plant. We have in mind a small, dainty, light-blue flower on a slender flat stem about 1 foot high, with long narrow flat leaves, somewhat grass-like in appearance. Let us identify this plant by use of Mary Francis Baker's book.

#### Key—For the Identification of Plants.

Flowers—Blue, violet, or purple.....	12
A. Herbaceous plants	
B. Leaves alternate	
C. Flowers not in heads	
Petals separate	
Petals 3, sepals blue or violet. Iridaceae.....	45

On page 45 we find,

Iris Family	
Iridaceae. Flowers 6-petal, iris blue or lavender, leaves sword shaped or grasslike.	
Fruit on capsule. Flower less than 1 inch across. Sisyrinchium.....	47

On page 47 we find two species described. If a more accurate and detailed description is desired, refer to the "Flora" or other suitable systematic botany of the region.

It is felt that anyone with just a small knowledge of plants can soon familiarize himself with the explanatory part of Mrs. Baker's book on pages 6, 7, and 8. With a little practice, on the common flowers he may know, one can learn to use the keys, and before long can satisfy his curiosity as well as add to his knowledge of local plants.

The grasses are not included in Mrs. Baker's book.

—C. B. BLICKENSDEFFER.

## NORTHEAST



**STILL BUDDIES.**—The spirit of the agricultural pioneer in house and barn raisings is being brought back to Pleasants County, W. Va., by a group of World War II veterans taking the GI agricultural course at St. Mary's. Every Friday they visit the farm of a class member and give his farm operations a big push ahead. Installation of conservation practices always gets a lot of attention.

**HE WANTS IT BACK.**—"Earl Winice, on the Rock Sun road, lost his conservation farm plan between his home and the Nine Mile meetinghouse a week ago Thursday. It is in a brown paper envelope 10 to 12 inches long, with his name on the outside. He would appreciate getting it back because it serves him well as a guide in using his land to advantage. It contains adapted seed mixtures and soil treatments needed in each of his fields, and other farming memoranda that a man can't carry in his head."—Pleasants County Leader, St. Marys, W. Va.

**MAGIC FORMULA.**—"Brome O Grass" is the name L. E. Cumby, Falls Mill, Mercer County, W. Va., farmer has given a 2-acre meadow. It was seeded 2 years ago with 10 pounds of brome grass, 5 pounds of orchard grass, 5 pounds of alfalfa, and 2 pounds of Ladino clover. Last year Cumby took three heavy cuttings off the field. A fourth crop developed, but he decided it would be better for the ground if he let it stand.

Only a few years ago, after several years' production of corn, this meadow was the worst eroded field on the farm.

In 1945, before planting the last crop of corn, Cumby limed the field and applied several tons of manure and 600 pounds of 0-20-0 fertilizer. He followed the corn with wheat and applied 600 pounds of 4-12-4 fertilizer. In the fall of 1946 he sowed a cover crop of rye that he turned under the next spring, before he sowed the "Brome O Grass" mixture and applied 300 more pounds of 4-12-4. Later in the summer he top-dressed with 300 pounds of 0-14-7. In 1948 he top-dressed again with 600 pounds of 0-14-7. In May of this year he gave the meadow a similar application.

**REED CANARY GRASS.**—Everett Moses, a cooperator in the White River Soil Conservation District at Royalton, Vt., thinks a lot of his reed canary grass pasture, a 2-acre piece that not so long ago was waste land because it was so wet. In 1945 a small creek overflowed and spread over the flat. Moses asked SCS technicians to do something about it. Next spring they started out by partly draining the tract. A seedbed was prepared in the dry season of 1947 and seeded down with reed canary grass, timothy, and Ladino clover. In the spring of 1948 grazing started. The 2 acres provided night pasture for 17 milkers. Even with intensive grazing, at times it looked as if it would be necessary to mow to keep ahead of the growth. Although Moses had a fall herd, milk production went up to 50 pounds per day when he turned the cows in.

This year, grazing was started in April. In June the grass was still well ahead of the cows.

**STUBBORN FIELD.**—For four generations members of the Easterbrook family unsuccessfully tried to clear and get some use out of a 20-acre field back of their barn. Then SCS engineers working with the South Worcester (Mass.) Soil Conservation District came along and lined up a drainage system, helped Harold Easterbrook get needed equipment, and supervised the work. Not all this installation has been completed, but at least half of the field has been plowed and seeded and the rest of it will be in production before long.

**PROGRESSIVE LEASE.**—For the first time in New Jersey, a lease for a Sussex County farm contains a clause requiring the lessor to operate in compliance with soil conservation practices. It is included in the 3-year agreement between Earl Price, farm owner, and Jacob Krotje, lessor.

The 135-acre farm is in the Morris-Sussex Soil Conservation District. George Geary, one of the district directors, says the lease guarantees that work already

started will be carried to completion and that the farm will become a guide for other farmers who wish to follow the complete farm conservation plan. All but 5 acres of the farm are tillable.

**STONE-REMOVAL SPEEDED.**—A specially constructed 10- by 12-foot stoneboat, of lighter construction than commonly used with bulldozers, now speeds up stone-removal projects near Bristol, Mass. It is of quarter-inch steel plate. Chief advantage is that when empty, after depositing a load, a farmer can haul it back to the point of stone removal with a farm tractor. This gives time for the bulldozer to get another load ready.

Out of their experience in various methods of stone removal, SCS technicians at Segreganset conclude that the most efficient service can be obtained from a bulldozer when it is used with a large light stoneboat and a farm tractor. When only a bulldozer is used, much time is lost in pushing stones out of a field. Excavating a trench, pushing an old wall into it with a bulldozer, and then covering the trench was found to be time consuming and expensive, and there was the risk of further delays from encountering stone, hardpan, or quicksand. In the most effective use of machines, stone and other materials were pushed on the steel stoneboat, pulled out of the field to a large depression, and scraped off with the "dozer." This made it possible to get the bulldozer back into position for pushing another load onto the boat, with the farmer hauling the boat back with his tractor.

**PARTNERS IN PROJECT.**—B. Franklin Bishop and William W. Nichols, Upper Pittsgrove Township farmers in the South Jersey District, N. J., have completed 6,500 feet of drains.

When they decided to pool their efforts in attacking a common problem, technicians working with the district made the surveys and prepared plans. The farmers jointly rented a bulldozer from the district at a nominal cost and established a V-type header ditch along the line where the two farms came together. From this, 2,000 feet of laterals were built to the wet areas in Nichols' farm and 3,000 feet to like areas in Bishop's acres. They split the costs on a proportionate basis, each paying much less than his expense would have been had he proceeded separately. They got the work done more quickly, too.

**FIGURES ON DITCHING.**—When an avalanche of requests for use of a new tile ditching machine hit the office of the supervisors of the Greenbrier (W. Va.) Soil Conservation District, they set up a schedule and limited installations to 25,000 feet per year in each of three counties, Pocahontas, Monroe, and Greenbrier. That's all that can be handled in a year by the technical men who do the surveying and planning.

The district has just hung up a neat low-cost production record. In a run of 44,349 feet of ditching started last October, the average cost per foot to cooperators for the use of the machine was 3.4 cents. It had been anticipated that the cost would average 4.5 cents per foot. In installing this amount of tile the ditching machine was operated 169 hours at an average digging rate of 262 feet per hour. Because the over-all cost of operating the ditcher in 1948 developed a loss, owing to the large number of repairs required, the supervisors have boosted the rate farmers pay from \$9 to \$11 per hour. Even at the new rate, the cost on the 44,349-foot job would have averaged only 4.1 cents per foot for use of the machine, still under the estimates.

**GREEN PASTURES.**—Arthur Leland and sons, farmers at East Bridgewater, Mass., had been bothered for years because they could get only poor grass from a 10-acre field. It was too wet for any kind of production. Technicians in the Plymouth District laid out a drainage system and a land-clearing program. A shallow ditch, parabolic type, did the job. The Lelands got "a wonderful crop" of clover and timothy. Other conservation installations gave the Lelands "very good pasture," so good that they became one of the three Green Pastures contest winners in Massachusetts in 1948.

**BROMFIELD FOLLOWER.**—A junior Malabar Farm is starting to grow up in Ipswich, Essex Soil Conservation District, Mass., where B. H. Warburton, a friend of Louis Bromfield, pappy of the original Malabar Farm, has purchased 275 acres. Warburton studied soil conservation measures while visiting Malabar Farm near Mansfield, Ohio, and is anxiously awaiting the time when he will have his own complete farm conservation plan in operation.

He has a big job on his hands because the farm had been idle for years. He had to start from scratch. He is now plowing, fertilizing, and reseeding meadows and pastures so that he will have support for a dairy herd. Two existing farm ponds are to be cleaned and deepened. A drainage system is to be installed. All of the old stone fences and hedgerows are to be replaced with living fences of *multiflora rose*. He is a lover of wildlife, so naturally there will be plenty of wildlife cover provided.

#### ATTENTION: DISTRICT OFFICERS

All subscription orders for this magazine should go directly to the Superintendent of Documents, Government Printing Office, Washington 25, D. C. They should be accompanied by check or money order, \$1 per year in advance, and typed or clearly written names and addresses.

Many soil conservation districts are providing yearly subscriptions to their governing bodies, and also to new district farmer cooperators. See pages 33 and 47 of this issue for examples of uses to which this publication is being put.

## SOUTHEAST

**ORDERLY SEQUENCE.**—Better farm conservation plans are being written in the Northeast Alabama Soil Conservation District since those responsible for them have learned to say "no" to farmers who are interested only in single practices. This is especially true in the matter of water disposal systems.

One farmer wanted his 700-acre cotton farm terraced but wouldn't agree to establish the outlets. When he finally did come around, the farmer put in eight meadow outlets before building a single terrace. His land lies between two main highways and presents an excellent example of a complete farm water-disposal system. And he has a higher regard for his outlets than for any other conservation practice on his farm.

**VICE PRESIDENT BARKLEY SPEAKS.**—"We must keep ourselves strong by the conservation of all our resources," Vice President Alben Barkley said in an address at the farm face lifting on Reinhardt College Farm in northern Georgia. "We are all united in this great program to preserve America for ourselves, our children, and our children's children. What we are witnessing here today should never have been necessary—the reclamation of land that we have wasted. This process of land destruction went on until it was necessary for the Government of the United States to inaugurate a Nation-wide soil conservation program. The problem of our Government and our people is to preserve the land that is left. We are trying to educate our people to the fact that there is a science of the soil. And we are witnessing today a symbol of the workability of our form of society. Let us Americans, without regard to politics, race, religion, or any other differences, join together and hand down to future generations a Nation rich in resources and the traditions of freedom."

**FOOD FOR THOUGHT.**—Parke Anderson, president of the Florida Association of Soil Conservation Districts, wonders if supervisors have given enough thought to telling the conservation story to both urban and rural people. "Really, conservation is more important to the city folks than to the farmers," he says. "Figure it this way: One hundred and fifty years ago, 19 farmers supplied the needs of 20 people for food and fiber; 1 person, therefore, could live and work in the city. Seventy-five years ago, 8 farmers supplied 10 people, and 2 could live in the city. Today, 1 farmer provides supplies for 4 people. All supplies beyond the farmers' needs go to cities. If farmers have only enough to live on, city people will starve. Without our program, fields that used to be fertile became unproductive. It is only through conserving the soil today that we provide a surplus to feed cities."

**TUNG COVER.**—Byrd Holloman of Mississippi is not satisfied with either summer or winter cover crops on land used for tung-nut production. He wants to grow both on the same land each year. Here's why. "Where we plant cover crops, both winter and summer, we expect yields to double," he explains. He cites his experience managing one 808-acre tract of tung trees. "We planted half the tract to Alyce clover. There, trees grew about a third larger and produced twice the amount of nuts because of the clover. Those trees were the last to lose their leaves last year and probably will be the first to put out leaves this spring." The Mississippian manages five separate farms, using a complete soil and water conservation plan on each. He is a commissioner of the Stone County Soil Conservation District.

**EIGHT TRENCHING MACHINES.**—Eight large trenching machines have been purchased in eastern North Carolina for laying tile drains as a result of demonstrations with a machine owned by the Soil Conservation Service. The latest was purchased at \$8,650 by a score of farmer-stockholders in the Lenoir County Drainage Corp. for



carrying out drainage operations planned by technicians in the Southeastern Soil Conservation District. Several large trenching machines also have been acquired in South Carolina and Virginia.

**ARSENAL LAND.**—Officials of the Milan Arsenal in west Tennessee realized in 1947 that the land they were leasing to farmers for agricultural use had varying capabilities and needs. That's when they called on SCS men to help determine the use and treatment of each acre available for lease to farmers. Last year six SCS soil scientists led by Nathan I. Brown made a complete survey of the area. Now, armed with colored maps showing land capability classes and Gibson County Soil Conservation District's "Guide to Safe Land Use and Treatment," the arsenal officials lease land for 5 years at a time under terms that will insure conservation of soil and water.

**PROFIT FROM KUDZU.**—J. P. McMichael of Wayne County, Miss., is a great booster for kudzu. In 1947, he harvested and baled hay that brought \$300—\$65 per acre from each of the 5 acres in kudzu on his Mazingo community farm. This entailed an investment of only 6 man-days, because McMichael used the farm tractor in harvesting it.

Last summer, despite rainy weather, he put in the barn 240 bales, and later sold 100 bales for \$100. All this came from 5 acres once "worn out."



**DENMARK BOUND.**—Aksel Pedersen, a dairy and poultry farmer of Jackson County, Miss., a native of Denmark, plans to visit the old country on profits from conservation farming.

Pedersen told commissioners of the Jackson County Soil Conservation District early this year that his conservation farming had taken him out of the red. "Last winter I lost about \$400 during the winter months. This winter I am making a profit. I attribute this to the pastures that I have started as a part of my conservation plan," Pedersen told them.

"Eighty percent of my land is now green with fescue, Bahia grass, and crimson clover. At first I had the 'cart before the horse'—cows but no pasture."

**FROM FRIEND TO FRIEND.**—Jackson County Soil Conservation District in the Southern Appalachian Mountains of Kentucky got an early start in group action. While the district was being organized, District Conservationist E. A. Oren took the supervisors identified with two communities on a tour of an adjacent district. There they saw their first terraces, Kentucky 31 fescue, kudzu, and sericea. With the aid of the two supervisors, 26 neighborhood leaders in the two communities were selected and conservation surveys were made immediately on the 26 farms. The neighborhood leaders were divided into two groups and meetings were held in February 1948. A wall-size chart of the best known farm in each community was displayed and each farmer had a colored planning copy of the map of his farm. Questions during the meetings indicated that most of the farmers got a fair knowledge of the capability classifications on their farms. Colored slides were used to illustrate a discussion which followed on conservation practices.

Farms of the two supervisors were planned in March, but a farm planner was not available for general planning work until May. In the meantime, the groups visited two or three other farms where outstanding examples were seen of terracing, sericea, kudzu, and pond-building. The farm planner reports that planning was easy and that application is well ahead of schedule. At the end of the first year, 16 of the 26 farmers had established Kentucky 31 and Ladino clover pastures; 7 had constructed 66,000 feet of terraces and diversions, and 7 were awaiting terracing equipment; 12 planted 76,000 kudzu crowns; 10 seeded 49 acres of sericea; 11 built 15 farm ponds and 5 more are awaiting service by the district pond-building equipment. Most of the practices were established along well-traveled roads.

As the work progresses, the farm of each neighborhood leader will become the nucleus of a neighborhood group.

**LOVE THAT FESCUE.**—When Sam Casey, of Stonewall, N. C., turned his herd of dairy cows into his fescue-Ladino clover pasture for the first time, they didn't want to leave. After letting them graze about 45 minutes, he tried to drive them out, but they began to jump back over the fence, and several of the cows were cut by barbed wire. "There was no keeping them out after the first taste," Casey said.

**FUNDAMENTAL TRUTH.**—The *Smithfield* (N. C.) *Herald* in an editorial on "Tobacco and Soil" comments as follows: "What we often fail to acknowledge is the simple, obvious reality that the prosperity of any agricultural region stems from the soil, and only secondarily from the plants that grow from the soil. If anyone doubts this failure to acknowledge a fundamental truth, let him consider why most farmers and businessmen usually show less concern over soil depletion and erosion than they do over weather or price conditions that adversely affect the gross agricultural income."

**BUSY BEAVERS.**—Last fall a colony of beavers decided that a fish pond on the J. Hawley Poole farm in Moore County, N. C., would be a good place to settle down. And



because of this Poole got more wildlife than he had bargained for.

After the beavers built their home at the upper end of the pond, they decided to raise the water level. First, they stopped up the riser pipe with leaves and sticks. This raised the water about 6 inches, but then water started running through the spillway. They soon remedied this situation by building a semicircular dam about 18 inches high across the spillway.

While this gave the beavers enough water around their new home, it left only about 6 inches of freeboard on the dam. This did not suit Poole, for he was afraid that in case of a heavy rain the dam along with beavers, fish, and water would all leave the farm.

It was a case of man against beast. As fast as Poole would tear away a section of the beavers' dam across the spillway, they would promptly build it back. Poole, who is president of the North Carolina Association of District Supervisors and chairman of the Upper Cape Fear Soil Conservation District, took all this rather philosophically. Said he, "If the average human were as industrious as the beaver, there would be very little poverty in the world today."

**EIGHT-YEAR EPIC.**—District Conservationist C. R. Lamb, Greensboro, N. C., opened his mail to find a long letter of appreciation from V. Eugene Coltraine, a co-operating farmer of Haw River Soil Conservation District. His spirits ran high that day. And no small wonder. Here, in part, is what Coltraine wrote:

"My erosion problems are solved. I can now enjoy a good big rain such as we are now having.

"When I signed up to carry out soil conservation practices, I had only one 14-foot granary and it held all the corn and grain that I grew. In a short while, I built a two-story 16- by 20-foot granary, thinking it would hold all that I would ever grow. Now I have my third granary two stories high, 18 by 30 feet, and I am cutting logs to build a double crib 24 feet long this spring. All this happened in 8 years, since I signed up with the soil conservation district in 1940.

"I need all the rain that falls now. It goes into the earth. I have a new spring on my farm that hasn't been dry in over 3 years—where before there was no water. Also, the earthworms work in rich, well-balanced soil that allows water to soak in.

"You know, farming the conservation way takes the drudgery out of farming and makes it a pleasure."

**LIKES THE RESULTS.**—John Shaw, cooperator in the Kenton County Soil Conservation District, Ky., built probably the first terraces in the county with the help of the district. Now he has 26 acres protected by terraces. Shaw says he doesn't exactly like terraces, but he likes the results he gets from them.

**BETTER AND EASIER.**—To Richmond McInnis, a commissioner of the Three Rivers Soil Conservation District, Miss., a completed soil and water conservation plan has meant "a better living a little easier." And that's not all. "There isn't as much dust and muddy water as there used to be," he explained to other commissioners early this year. According to McInnis, he had been "hit-

ting and missing" with row crops when the district was organized. Now, he has 20-odd acres in kudzu, 50 acres in pasture, 5 acres in Kentucky 31 fescue, and 5 acres of Bahia grass and reseeding crimson clover. This leaves little room for row crops, and the Mississippi farmer likes it that way.

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## UPPER MISSISSIPPI

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**OFF TO RIGHT START!**—The district commissioners in the Davis County, Iowa, Soil Conservation District have voted to give a 1-year subscription to SOIL CONSERVATION Magazine to each new cooperator who signs a soil conservation farm plan with the district.

**REALISTIC MODELS.**—The Hancock County (Ill.) Soil Conservation District, in cooperation with the county superintendent of schools, sponsored a conservation exhibit contest for elementary schools last spring. Each school had but 2 weeks to prepare its exhibit.

First place was won by the LaHarpe eighth grade, second prize went to the Colusa seventh and eighth grades, and third was won by the Franklin school.

Prizes of \$25, \$15, and \$10 were provided by a Carthage bank.

Hancock County is divided into nine school districts, each of which had its own contest. The soil conservation district directors selected the best three in each school district to compete for awards.

Exhibits included unusual model farms made of sawdust and glue or crumpled newspapers covered with papier-mâché. One was a sand table using real soil planted with actual crops in strips and on the contour.

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## WESTERN GULF

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**GARDEN CLUB.**—Soil conservation is standard procedure for the Hubbard Heights Garden Club, Fort Worth, Tex. Soil management is applied to flower beds and nearly every member has a compost heap. Grass is planted on ramps in yards and each member is careful not to cause erosion when watering the garden.

At the club's annual flower show this year, space was

devoted to a soil conservation exhibit—see picture. Mrs. C. R. Bullock is president. Chairman of the conservation committee is Mrs. J. C. Carroll.



## SOUTHWEST

**STOP-GO PLAN.**—The Arizona Association of Soil Conservation Districts believes it is on the road to solving its troublesome equipment problem, according to I. O. Rasmussen, president.

A system has been worked out for rotating, transferring, and generally making the most effective use of the machinery available to the districts, and it is expected that the plan will be approved shortly.

**WATER GOES FARTHER.**—Edward Sorenson, a cooperator of the Kamas Valley Soil Conservation District, Utah, is carrying out a progressive water conservation program which includes the leveling of each field on his dairy farm as old stands of alfalfa are plowed up.

Early in 1947, a Parshall flume was installed in the main irrigation ditch, where it enters the farm, in order that water diverted to each field could be measured.

In 1947, on one of these fields, 3.16 acre-feet of water per acre was used in producing 104 bushels of oats to the acre. This field was leveled and again seeded to oats in the spring of 1948. After this field was leveled, only 2.5 acre-feet of water per acre was needed for efficient irrigation.

**WARRING ON ALKALI.**—Poor drainage and heavy deposits of alkali present major problems on many farms

in the Arkansas River valley of southern Colorado. District farmers are carrying on a battle to alleviate these conditions, the most ambitious effort probably being that of the Hawley Drainage Association.

Eighteen cooperators of the East Otero Soil Conservation District have formed a voluntary association, which believes it can reclaim nearly 30 percent of 2,000 acres which have gone entirely out of production because of alkali.

It will take time and it will cost some money. This part of the program is being carried out by assessment on the basis of individual benefit. The association has a lawyer who is working out, with the advice of SCS technicians, a division of costs fair to all 18 members.

The plan calls for a huge main drain of the open type through the area from northwest to southeast. The upper portion of this main ditch was constructed during the winter and will be fed by drainage laterals as necessary. Some of these will be tile and some open. As drainage improves and alkali deposits gradually are flushed and leached out, land which has been out of use will be returned to production. Sweetclover will be one of the first crops planted in these reclaimed areas.

Importance of the problem is pointed up by the fact that probably not more than 20 percent of the 2,000 acres was entirely unaffected by alkali, and the worst areas were increasing steadily. An extremely involved study by SCS technicians preceded the start of construction.

These technicians outlined the affected areas. Then they made a soil survey which took into account changes, textures, topographical features, and land use. This study carried to a depth of 5 feet. Test wells were sunk and fluctuations in water table were recorded every 2 weeks for a year. Then the area was charted on a grid, stakes were set at intervals of 330 feet, elevations were taken, and nearly 1,000 deep holes were bored with an auger.

When all of this was done, the technicians had detailed information on underground water flow and soil features. They knew where water was coming from, and where it was going. This information will be the basis for future construction of drainage facilities.

**LABOR COSTS CUT.**—Improvements made this year by landowners of the Barranco Alto irrigation ditch system will reduce maintenance labor by 35 man-days annually and result in more efficient use of water, according to J. A. Gomez, manager, and Pablo Sena, mayordomo, of this community ditch in Santa Fe County, N. Mex.

Before the improvements were made the ditch was being damaged by the sloughing of earth from banks ranging from 2 to 12 feet high for a distance of 500 feet. The caving of the banks was blocking the flow of water, cutting down the quantity available for crops and gardens. In addition, the Nambe River was digging into the lower bank of the ditch, and the overflow from a high ditch was causing damage.

Notwithstanding expensive maintenance work, the ditch was gradually getting worse. Therefore, it was decided to seek assistance from the Pojoaque Soil Conservation District.

A complete conservation plan was worked out by Gomez and Lawrence K. Sandoval, representing the Soil Conservation Service. Under its provisions, 260 feet of heavy brush jetty has been constructed to divert the river, 500 feet of 18-inch helcor pipe has been put in to prevent bank-sloughing, a pressure-type division gate has been installed, and an 18-inch 20-foot undershot has been constructed to protect the ditch from upper drainage.

"The labor and time we formerly spent on maintenance now can be applied to the improvement of our individual farms," Gomez reports.

**MACHINERY ON CALL.**—The Upper Arkansas Soil Conservation District, Salida, Colo., has 20 pieces of farm equipment which it rents to cooperating farmers and ranchers.

In setting up the equipment program, district supervisors adopted the policy of leaving the heavy earth-moving jobs to contractors while the district purchased small equipment that can be pulled by farm tractors for the less difficult jobs.

On December 31, 1945, the district had only 1 piece of equipment valued at \$220 but now it owns 20 pieces worth more than \$3,000.

Walter Sneddon and Elvis Starbuck, co-chairman of the equipment committee, are in charge of the machinery. Included are land levelers, trashy-tillage plows, a drill with grass-seed attachment, a combination grain and fertilizer drill, a uni-tiller chisel, two horse-drawn graders, a caterpillar grader, two horse fresnos, two tumblebugs, a cement mixer, a 400-gallon water tank, ditchers, and forms for prefabricating irrigation structures.

**WATER SOURCE TAPPED.**—A group of farmers in the Pojaque Soil Conservation District of New Mexico have completed a project which they believe will increase their supply of irrigation water by 25 percent.

Since the Nambe River, their source of supply, sometimes does not run a sufficient flow in summer, farmers in the El Cano ditch system have installed 360 feet of 8-inch pipe in the swampy area along the river to tap underground water. Part of the project was a headwall designed to keep a sandy wash in its channel and prevent sediment and erosion damage to the irrigation system.

Twenty-six farmers, operating 217 acres of land, now are guaranteed a permanent supply of water for gardens and orchards.

#### SCD GIVES MAGAZINE TO ALL COOPERATORS.

Word from Grant Anderson, district conservationist at Tucson, Ariz., is that the Pima County Soil Conservation District now buys a 1-year subscription to SOIL CONSERVATION Magazine for each of its active cooperators. The district charges a minimum handling fee of \$10 for district assistance and pays for the year's subscription out of that. Presumably, the practice will be continued and each new cooperator will receive a subscription.

## PACIFIC

**MANAGED WATER.**—When soil conservation work was started in the Latah (Idaho) Soil Conservation District, one of the first things stressed was the grading and seeding of the gullies draining small watersheds. (See page 24, August 1949 issue.) Seeding of gullies provided the seed source that had been lacking for years.

In the uplands, planned, properly shaped waterways are proving to be good soil savers. Farm equipment can cross them, enabling farmers to use contour operations.



Watercourse on Chris Deestan farm south of Moscow, Idaho, was shaped and seeded by CCC crew in 1937.



Same water course 10 years later; result of good maintenance.



Enlarging and straightening channel on George Ernst farm, near Genesee.

And there is less breakage of farm machinery when ditches are smoothed out.

Good drainageways are a big-help in the bottom-land areas, too.

Farmers using planned drainageways actually have more land under cultivation today. Most of them are harvesting a hay crop from their waterways. They have found it pays to maintain the drainageways.



# MODERN SOIL CONSERVATION

BY HUGH BENNETT

**M**ODERN soil conservation is based on sound land use and the treatment of land with those adaptable, practical measures that keep it permanently productive while in use. It means terracing land that needs terracing; and it means contouring, strip-cropping, and stubble-mulching the land as needed, along with supporting practices of crop rotations, cover crops, etc., wherever needed. It means gully control, stabilizing water outlets, building farm ponds, locating farm roads and fences on the contour, and planting steep, erodible lands to grass or trees. Modern soil conservation, moreover, consists of doing these and still other necessary things. Where the land is too wet, modern soil conservation calls for drainage; if it is too dry, it calls for irrigation; if subject to wind erosion, it calls for stubble-mulch farming, wind strips, and windbreaks. If plant nutrients have been depleted, it calls for fertilization; if water-soluble salts have accumulated in toxic quantities, it calls for leaching out of the salts by flooding. And modern soil conservation calls also for the use of the best of the most adaptable varieties of crops, as well as the most efficient tools available to farmers.

Each measure is applied to meet a specific need, as determined by actual physical analysis of the land through soil conservation surveys, wherein each individual parcel of land is classified according to kind and need. Combinations of mutually supporting measures are very often used to safeguard the more hazardous types of land and what is done in one place is adjusted to the needs of adjacent land.

There is no other way to carry out a successful job of lasting soil conservation: the kind that can be maintained on the land permanently. This is a condition imposed by nature, not by man, although man's treatment of the land frequently has altered the natural conditions in ways that necessitate special treatment. There is no substitute for this painstaking, scientific procedure, and certainly there is no panacea for soil erosion. Trying to get the job done on a permanent basis in any other way will surely yield futile results. And what is to be gained from temporary soil conservation, beyond some momentary advantage that doesn't cure anything?

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